BWI BALTIMORE/WASHINGTON INTERNATIONAL Thurgood Marshall AIRPORT

Quarterly Noise Report
First Quarter 2019

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION

MARYLAND AVIATION ADMINISTRATION

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Overview

This report provides a review of the aviation noise program for the 1st Quarter of 2019 (January 1 to March 31). Included in this report is information on jet aircraft operations, observance rates for noise abatement procedures, complaints received about aircraft noise, and community outreach efforts by the Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA). The table below displays various measurements for 2019 in comparison to the 1st Quarter of 2018.

Measurement	1st Quarter (2018)	1st Quarter (2019)
Average Daily Jet Operations	627	592
Average Daily Night-time Operations	95	96
Complaints to Noise Office	6,637	111,888
West Flow Operations	76%	67%

Definitions

Maryland Department of Transportation Maryland Aviation Adminstration (MDOT MAA): Operator of Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall Airport).

Decibel (dBA): A unit of measurement of sound pressure adjusted for the human ear's response to particular frequencies.

Day-Night Average Sound Level (DNL or Ldn): A descriptor of 24-hour noise (midnight to midnight) that adds a ten-decibel (dB) nighttime penalty to noise events which occur between the hours of 10 p.m. and 7 a.m to account for the intrusive nature of noise at night.

Airport Noise Zone (ANZ): An area of land surrounding the airport within which noise levels are equal to or greater than DNL 65 dBA.

Code of Maryland Regulations (COMAR): Requires MDOT MAA to control development in areas where noise levels are DNL 65 dBA or more.

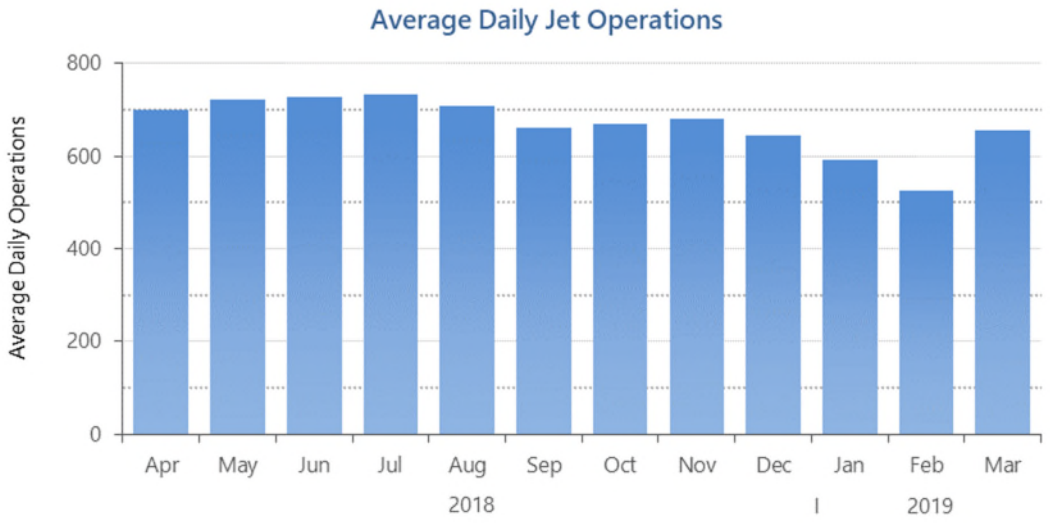
Airport Operations

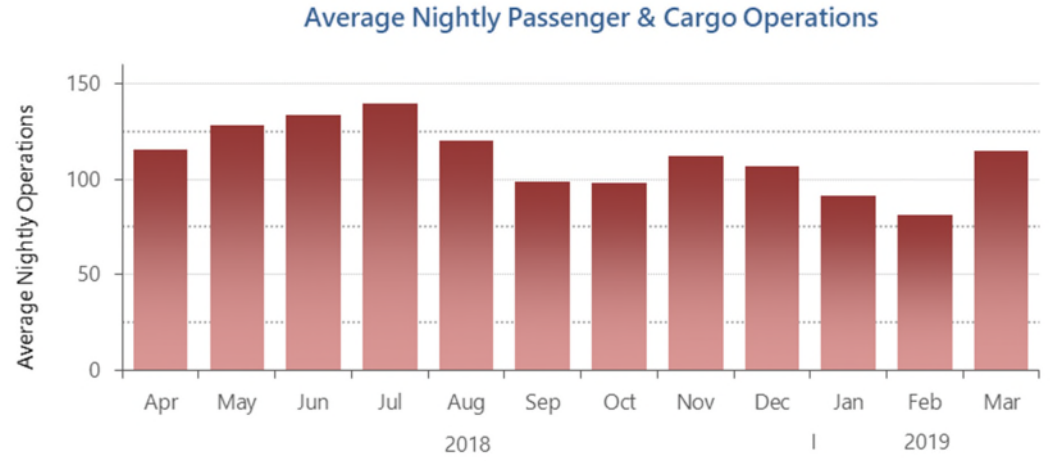
This section presents information on the level of operational activity at BWI Marshall Airport; including air traffic levels by jet aircraft, runway use, and flight corridors.

Jet Operations and Nighttime Activity

The first figure shows the average number of daily jet flights at BWI Marshall, including arrivals and departures by air carrier, business jet, and cargo jet aircraft. The figure also presents data for the preceding nine months, for a twelve-month total. The average daily number of jet operations during the 1st Quarter of 2019 was 592.

The next figure presents nighttime air carrier, business jets and cargo jet operations. At BWI Marshall Airport, a nighttime operation is defined as an arrival flight or departure flight that occurs between the hours of 10 p.m. and 7 a.m. The average number of nighttime jet operations was approximately 96 per night during the 1st Quarter of 2019.





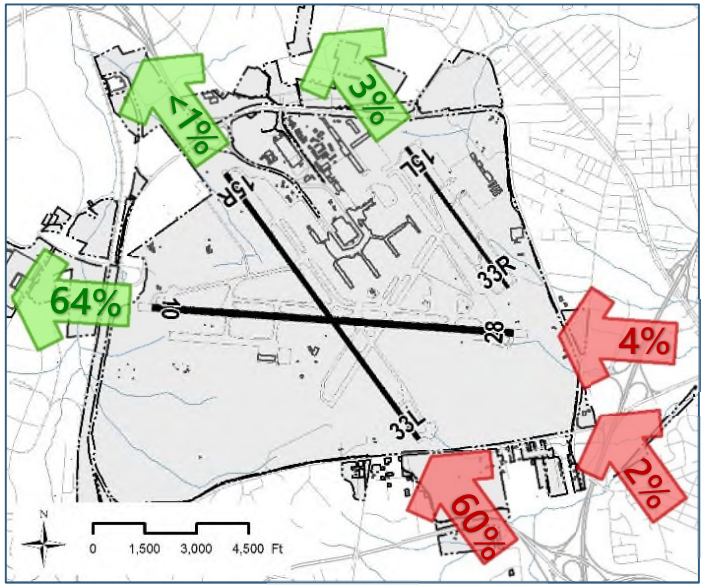
Runway Use

The MDOT MAA maintains a preferential runway use program to minimize the aircraft noise impact on neighboring communities. For noise abatement purposes, west flow (aircraft departures to the west) is preferred. Prevailing wind speed, direction and weather factors determine the direction of air traffic flow. Aircraft usually take off and land into the wind to meet safety and operational requirements. The figures to the right show jet runway use for the 1st Quarter of 2019.

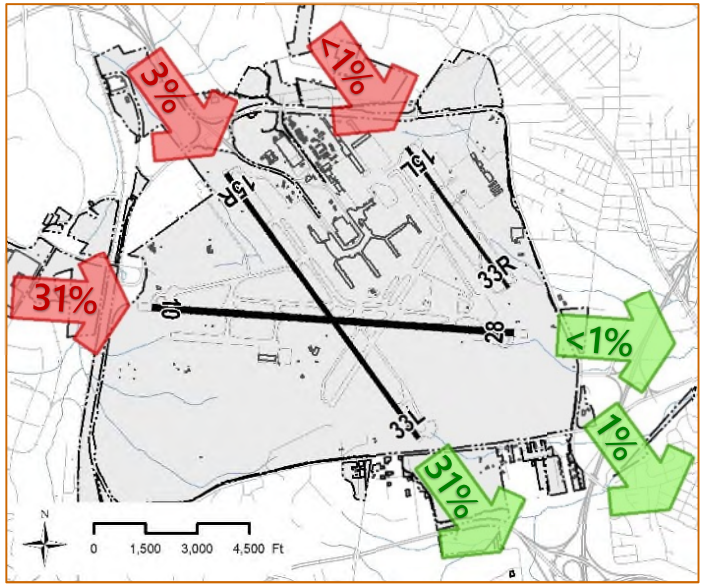
During west flow, all jet aircraft primarily depart (green arrows) from Runway 28 and arrive (red arrows) on Runway 33L, as shown in the top figure to the right. Historical trends result in annual average west flow of about 70%.

During east flow, all jet aircraft primarily depart (green arrows) from Runway 15R and arrive (red arrows) on Runway 10, as shown in the bottom figure to the right. Historical trends result in annual average east flow of about 30%.

West Flow
Runway Use
67% in First Quarter 2019
(Historical Annual Average of 70%)



East Flow
Runway Use
33% in First Quarter 2019
(Historical Annual Average of 30%)

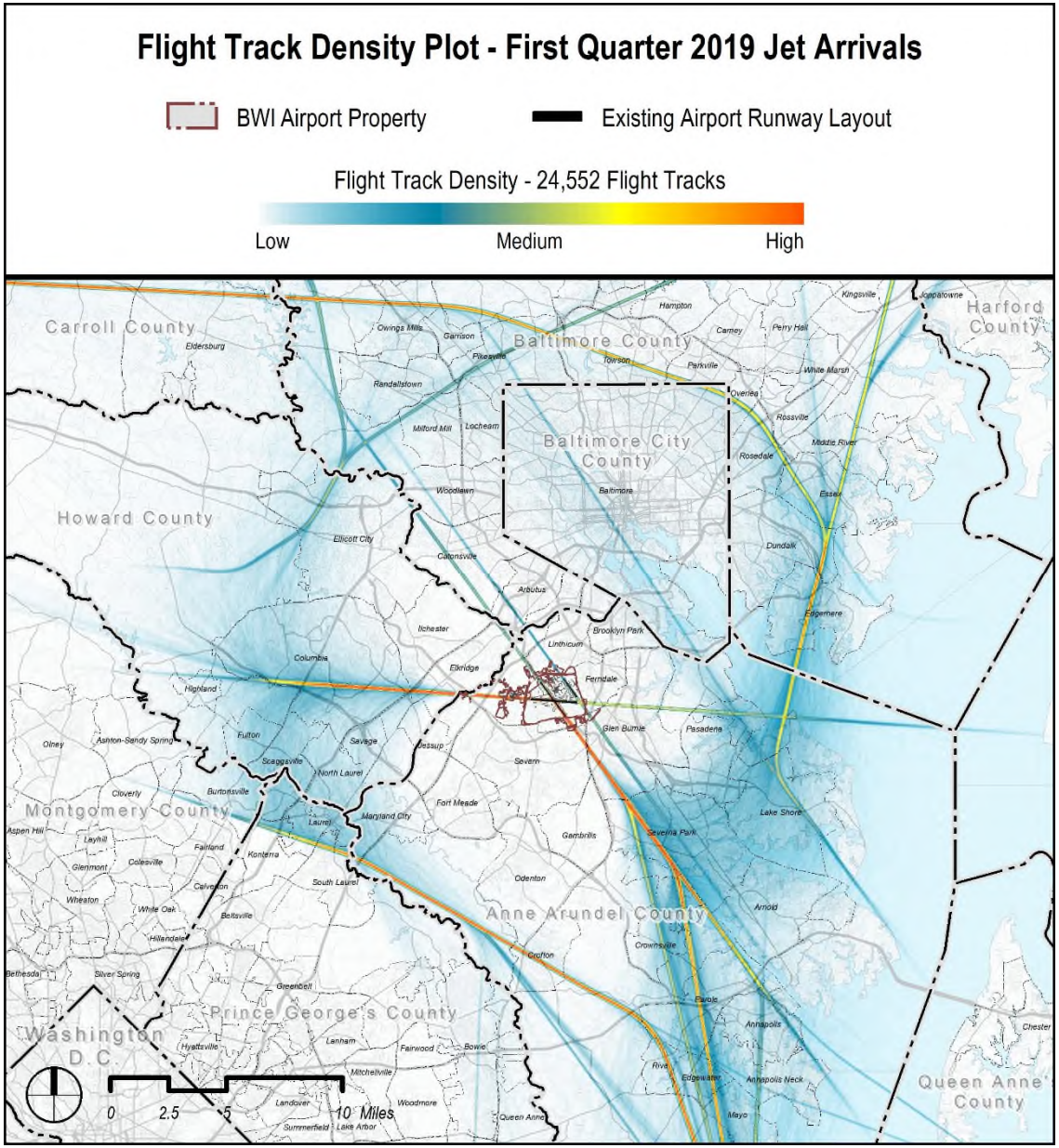


Flight Corridors – Jet Arrivals

The following figures depict the flight corridors at BWI Marshall Airport for jet arrivals and jet departures as derived from BWI Marshall Airport's Noise and Operations Monitoring System (NOMS).

The figure to the right shows jet arrivals during the 1st Quarter of 2019.

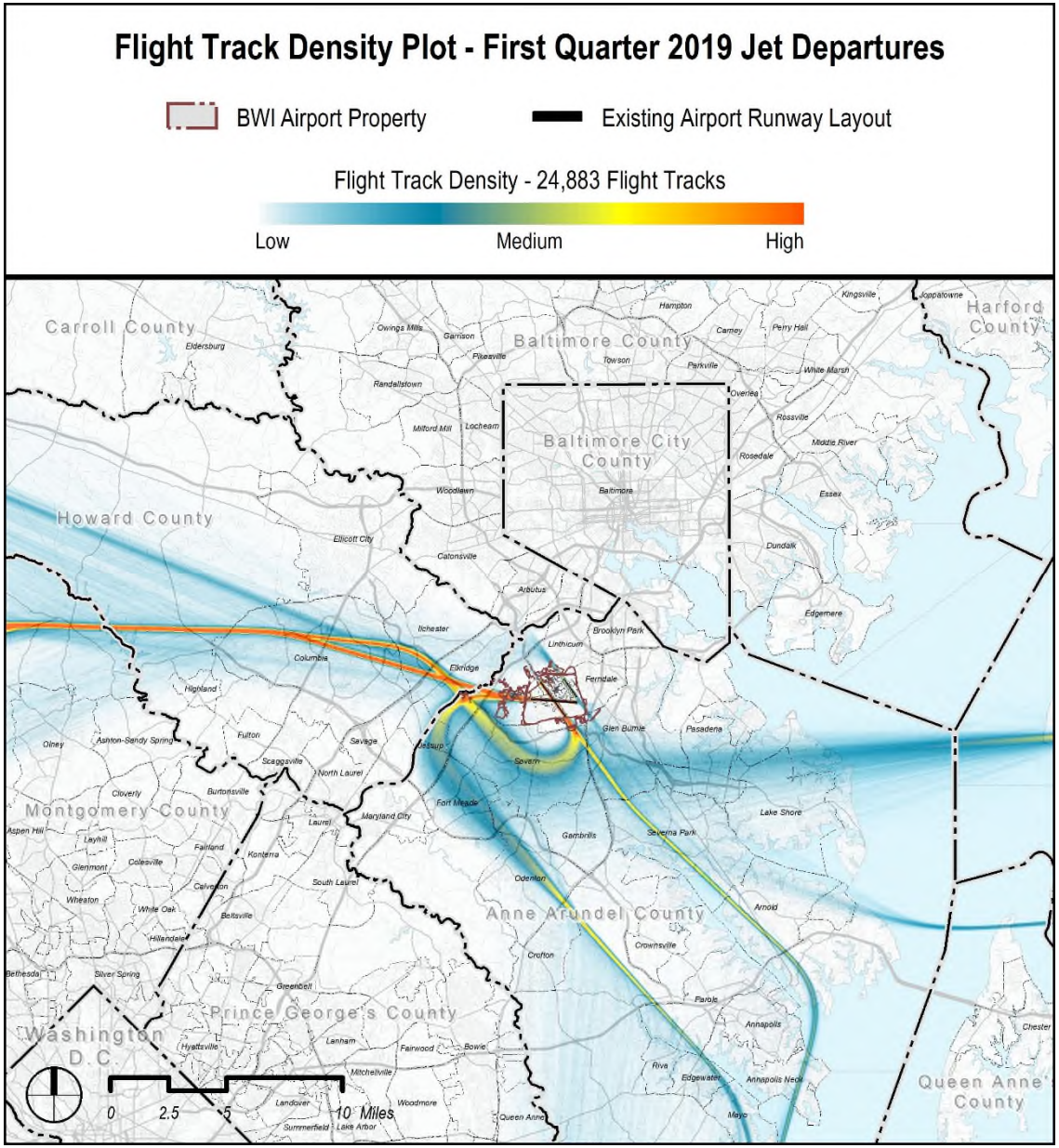
This flight track density plot uses color gradations to depict the flight track geometry, dispersion, and relative frequency of overflights. The color ranges are assigned based on the relative density of aircraft operations. Orange shows the highest density of flights, fading to yellow and then blue as the density decreases.



Flight Corridors – Jet Departures

The figure to the right shows jet departures during the 1st Quarter of 2019.

This flight track density plot uses color gradations to depict the flight track geometry, dispersion, and relative frequency of overflights. The color ranges are assigned based on the relative density of aircraft operations. Orange shows the highest density of flights, fading to yellow and then blue as the density decreases.



Observance of Noise Abatement Procedures

Adherence to approved noise abatement measures is voluntary and subject to change based on weather, efficiency, and safety

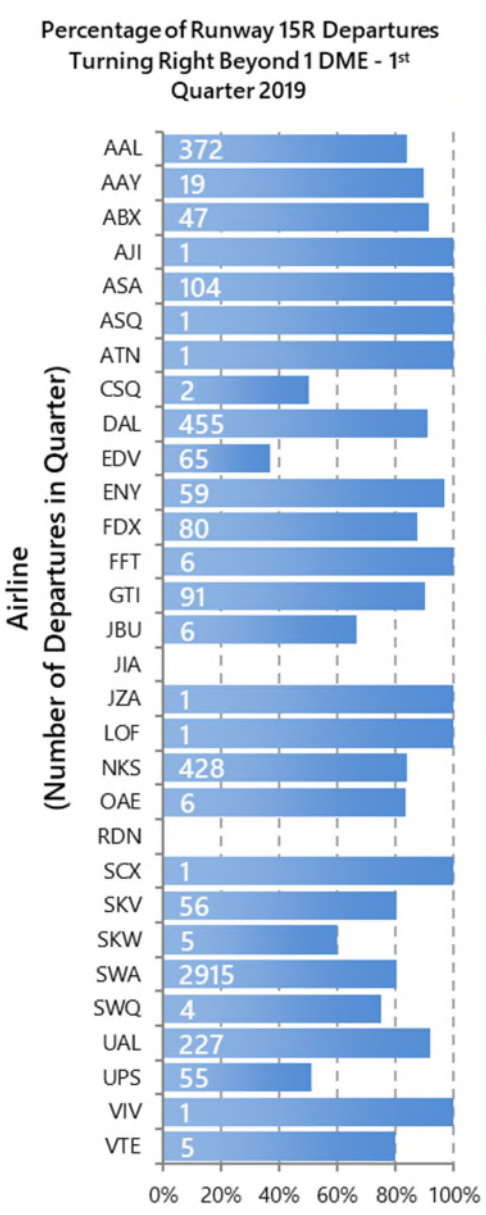
The graphs to the right show how the major carriers and cargo operators perform on the two noise abatement procedures of most interest to the local communities. These procedures are:

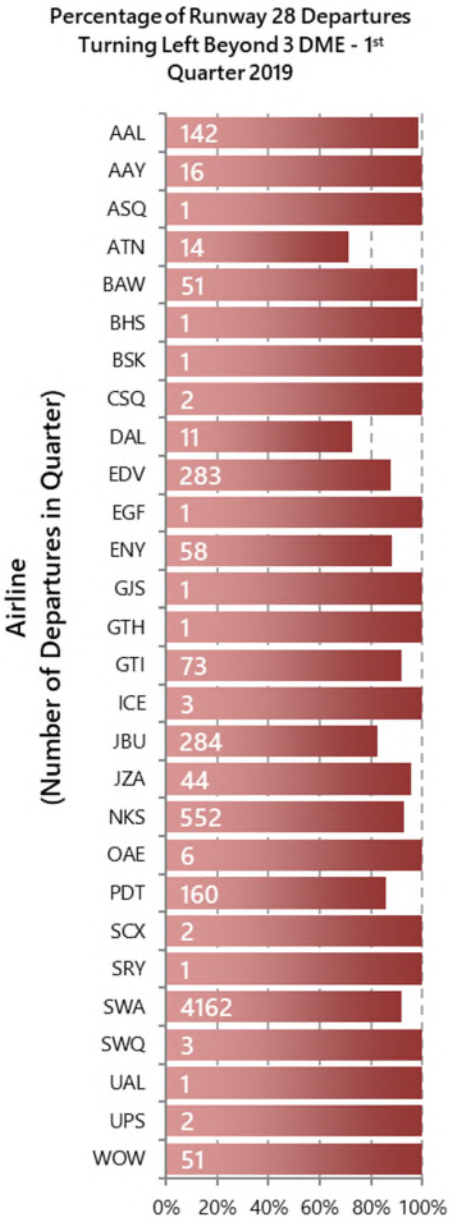
1. Runway 15R departures initiating their right turns at, but not prior to, 1 DME
2. Runway 28 departures initiating their turns at, but not prior to, 3 DME

The graphs show the percentage of flights for each airline which comply with each of the two procedures. Each bar also provides the number of operations by each airline subject to the noise abatement procedure. DME stands for Distance Measuring Equipment, and is the measured slantrange from the aircraft to the navigational aid located near the center of the Airport. One DME equals one nautical mile.

For the 1st Quarter of 2019, 82% of departures turning right from Runway 15R initated their turns beyond 1 DME.

For the 1st Quarter of 2019, 91% of departures turning left from Runway 28 initated their turns beyond 3 DME.

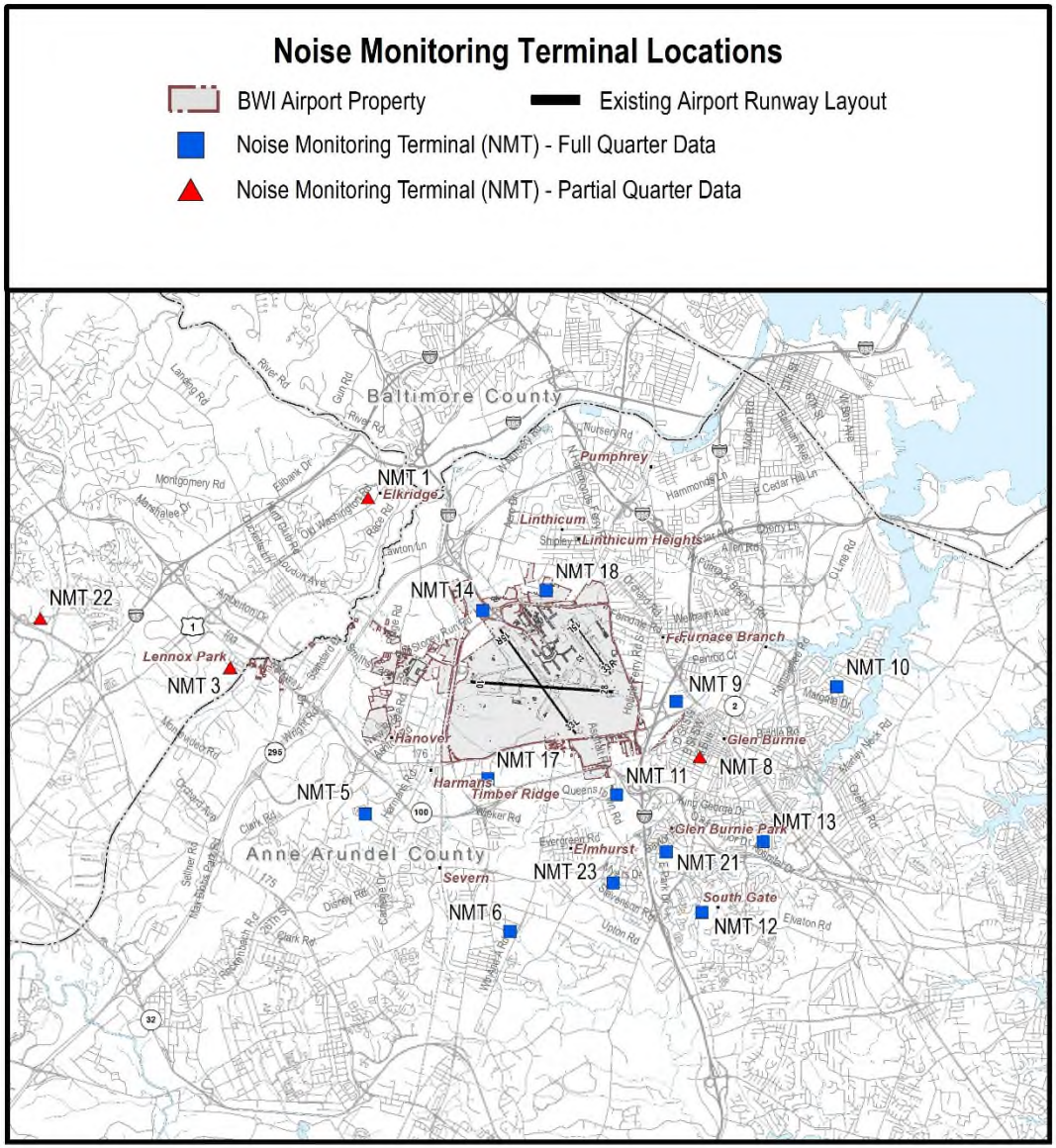




Noise Monitoring Program

MDOT MAA is transitioning to a new Noise and Operations Monitoring System, which includes replacement of BWI Marshall Airport's legacy remote monitoring terminals. Once complete, the NOMS will include 24 NMTs. The figure to the right presents the locations of the active permanent noise monitors for the 1st Quarter of 2019 from the NOMS. Blue squares represent NMTs that reported data for the full duration of the 1st quarter, while red triangles reported data for a portion of the 1st quarter.

The term DNL (symbolized as "Ldn" in mathematical equations) means Day-Night Average Sound Level, and is used to report aircraft, community and total noise levels. DNL is defined as the cumulative sound energy averaged over a twenty-four hour period, with ten-decibels (dB) added to noise events which occur between the hours of 10 p.m. and 7 a.m. This penalty accounts for the greater impact of noise events which occur at night. DNL is measured from midnight to midnight. The table on the following page provides the quarterly Aircraft, Community, and Total DNL values at each site. At some sites, community or environmental noise levels (street traffic and other neighborhood noises) exceed aircraft noise levels.



First Quarter 2019 Aircraft, Community and Total DNL				
NMT#	Location	Aircraft DNL (dBA)	Community DNL (dBA)	Total DNL (dBA)
1[1]	St. Augustine Church, Elkridge	42.9	57.7	57.7
3[2]	Lennox Ave., Dorsey	62.9	59.9	65.0
5	Hebron-Harman Elementary, Hanover	52.3	57.4	58.5
6	Delmont United Methodist, Severn	52.9	55.1	57.1
8[3]	Richard H. Lee Elementary School	-	-	-
9	Maryland National Guard Armory, Glen Burnie	56	62.8	63.6
10	Margate Pumping Station, Glen Burnie	47.2	54.2	54.8
11	Jones Rd., Queenstown	69.0	62.9	69.9
12	Rippling Woods Elementary, Glen Burnie	62.0	58.4	63.6
13	Woodside Elementary, Glen Burnie	49.2	57.1	57.6
14	Runway 15R Approach	58.1	65.6	66.2
17	Timber Ridge Rd., Hanover	43.7	58.7	58.8
18	Runway 15L Approach	55.6	59.6	61.0
21	Glen Burnie Park Elementary, Glen Burnie	61.2	60.4	63.8
22[4]	Lark Brown Road, Columbia	49.9	59.9	60.3
23	Quarterfield Elementary, Severn	57.2	58.7	60.7

[1] NMT DNL values represent partial quarter from January 18th, 2019 to March 31st, 2019.

[2] NMT#3 was decommissioned and removed on March 28th, 2019. NMT DNL values represent partial quarter from January 1st, 2019 to March 27th, 2019.

[3] Notably high levels of construction activity due to renovations of Richard H. Lee Elementary School at NMT 8 contaminated aircraft and community noise levels during 4th Qtr. 2018. Ongoing renovations will require on-site relocation of the NMT.

[4] NMT DNL values represent partial quarter from March 1st, 2019 to March 31st, 2019.

Note: NMT's 2, 3, 4, 15, 16, 19, and 20 have been permanently decommissioned at various points in time. NMT's 7, 24, 25, 26, 27, 28, 29, 30 and 31 are in the process of installation.

Residential Portable Noise Monitoring

The portable noise monitoring program is conducted by the MDOT MAA's Office of Environmental Services - Noise Section.

The residential portable monitoring program measures noise levels in selected areas on a temporary basis (typically for a two-week period) upon request of a homeowner. The final report provides aircraft noise levels for each day, the percentage of east/west operations, and general information about noise measurements and airport operations.

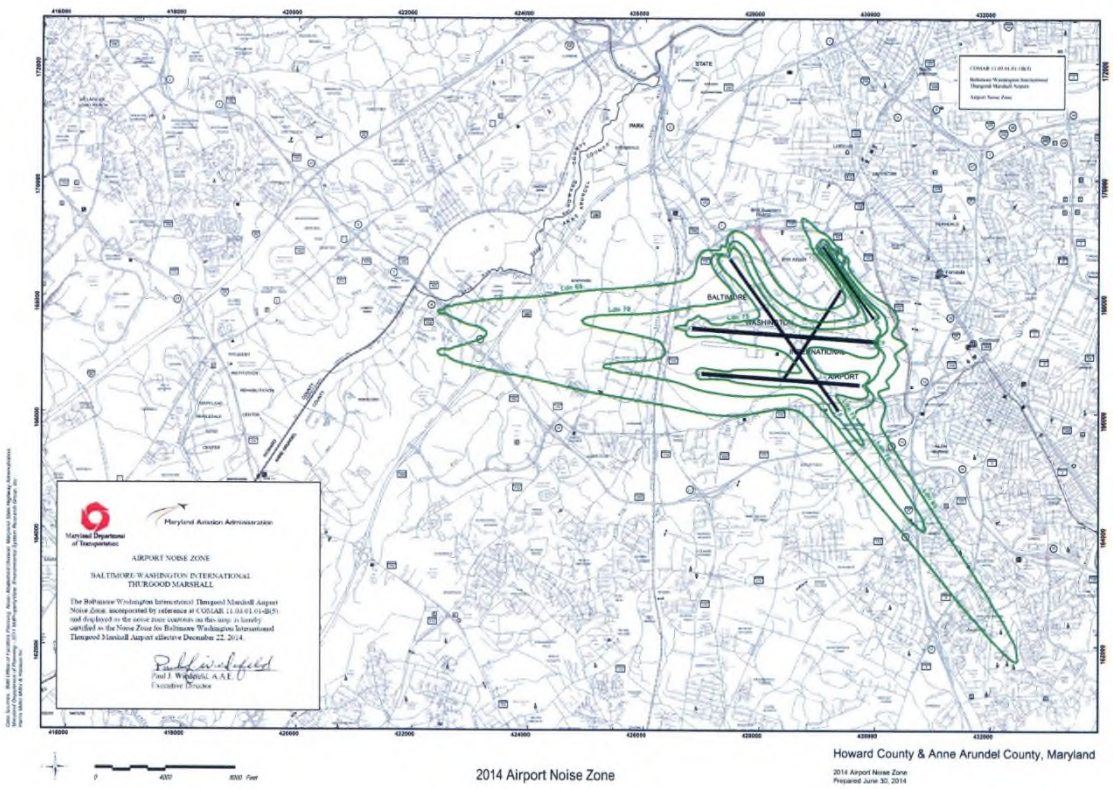
Portable Noise Monitoring Reports can be found at: http://www.maacommunityrelations.com/content/anznoiseupdate/2017-18_nmrs.php

Online applications for residential portable noise monitoring can be found here: www.maacommunityrelations.com/content/anznoiseupdate/portnoisemonitoring.php

Airport Noise Zone

The Maryland Environmental Noise Act of 1974 provides for the protection of citizens from the impact of transportation-related noise. The aviation portion of the Act requires the MDOT MAA to create a certified Airport Noise Zone (ANZ) to control incompatible land development around BWI Marshall Airport and a Noise Abatement Plan (NAP) to minimize the impact of aircraft noise on people living near the Airport. An ANZ and NAP were first established for BWI Marshall Airport in 1976. Both were updated in 1982, 1988, 1993, 1998, and 2007. The latest update to the ANZ became effective on December 22, 2014.

The ANZ is determined by a composite of three noise contours: a base year contour, a five-year forecast, and a ten-year forecast. The largest of the three contours in any area around the Airport determines the outline of the ANZ, thereby offering protection within the largest of the existing or future noise contours. The contours depict the Day-Night Average Sound Level (DNL) around BWI Marshall Airport. Both the State of Maryland and the FAA require the use of the DNL metric by all airports conducting environmental studies. The current 2014 ANZ is depicted to the right.



2014 Airport Noise Zone

Further information on the ANZ can be found here:

http://www.maacommunityrelations.com/content/anznoiseupdate/bwianz.php

Outreach and Community Involvement

The MDOT MAA engages in on-going efforts to enhance the level of communication and interaction between the Airport and area residents.

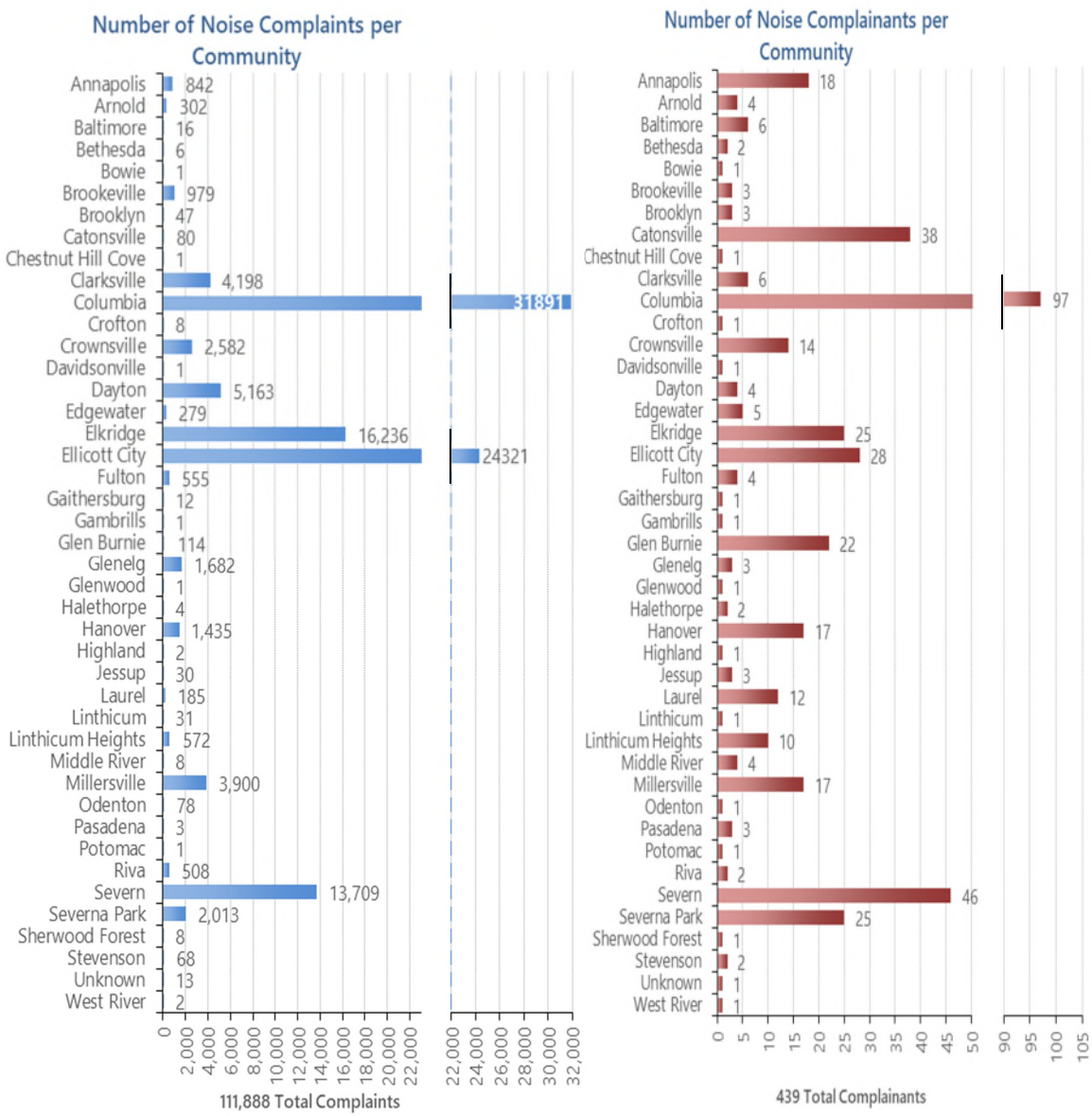
Airport Noise Complaints

The MDOT MAA maintains a 24-hour Airport Noise Hotline at 410-859-7021. Noise complaints can also be entered online at:

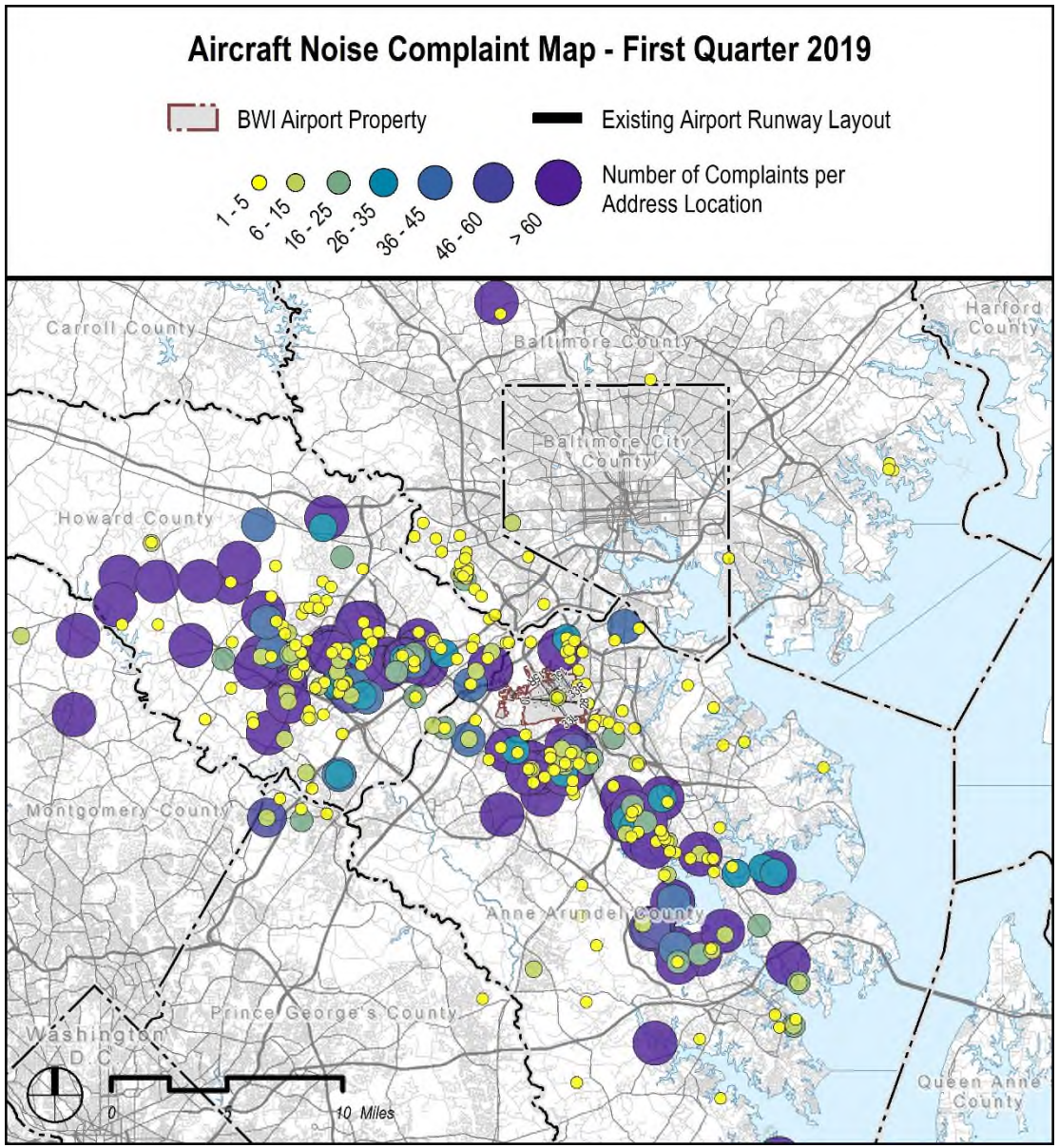
http://www.maacommunityrelations.com/content/anznoiseupdate/noiseform.php

The graphs show the number of complaints and complainants per community for the quarter.

There were 111,888 complaints (439 complainants) during the 1st Quarter of 2019.



The map to the right shows the locations and number of complaints for the 1st Quarter of 2019. The size and color of each caller location denotes the number of times a complaint was submitted during the quarter. Small yellow circles depict locations with fewer complaints while large darker circles depict greater numbers of complaints.



BWI Neighbors Committee

The BWI Marshall Airport Neighbors Committee was established in December 1983 and serves as a liaison between the Airport and the surrounding communities to ensure continuing and timely discussion of mutual airport and community interests.

The Committee serves as a forum for exchanging information, ideas and suggestions. Examples of interests include ground access (highways, light rail, etc.), long-range transportation planning, operational changes (construction, maintenance and air traffic control), noise abatement and other environmental issues, parking and ground transportation, and land use planning.

Community Enhancement Grant Program

The Annotated Code of Maryland, Transportation §5-414 provides for an 11-member "Citizens Committee for the Enhancement of Communities Surrounding Baltimore/Washington International Thurgood Marshall Airport."

This legislation benefits citizens living within the 1998 certified Airport Noise Zone or within two miles of the outermost noise contour by allowing them to apply for grants for transportation-related projects such as sidewalks, speed humps, street lights, etc. The grants awarded under this program are made by the Secretary of the Maryland Department of Transportation.

BWI Neighbors Committee Community Groups

The Community Enhancement Committee met on March 20, 2019 and recommended the approval of one grant application in the amount of $32,808.00.

Outreach and Community Involvement

The MDOT MAA engages in on-going efforts to enhance the level of communication and interaction between the Airport and area residents.

The MDOT MAA Community Outreach Programs encourage the exchange of information between the MDOT MAA and local community groups and residents. These programs supplement the efforts of the BWI Marshall Airport Neighbors Committee to promote the active participation of local residents in Airport issues.

Specific services or activities provided by the MDOT MAA are listed in the table to the right along with the number of events or recorded reports.

DC Metroplex BWI Community Roundtable

The DC Metroplex BWI Community Roundtable is an MDOT MAA initiative formed at the request of the Federal Aviation Administration (FAA).

More information about the Roundtable, including meeting agendas, past meeting minutes, and presentation materials, is available at www.maacommunityrelations.com.

Public Education & Activities – 1st Quarter of 2019	
Committee Meetings	2
Community Meetings	1
Community Noise Monitoring Reports	5
Airport Zoning Permits	87
eNews Express notifications	14

Community Roundtable Meetings – 1st Quarter of 2019

- January 15, 2019
  - Roundtable review and discussion of letter to FAA assessing FAA proposed procedure changes as presented April 24, 2018
  - Roundtable review and discussion of 2018 Annual Report
  - Roundtable discussion of future activities
- February 19, 2019
  - MDOT MAA and Roundtable update on the status of FAA's implementation of proposed procedure changes as presented April 24, 2018
  - Roundtable discussion of future activities
  - MDOT MAA updates on recent Roundtable activities and community requests
- February 28, 2019
  - MDOT MAA and Roundtable Technical Committee meet to discuss and review potential additional flight procedure design changes at BWI Marshall

Office of Environmental Services - Noise Program
P.O. Box 8766
BWI Airport, MD 21240-0766

Noise Complaints

BWI Noise Hotline: 410-859-7021

Online:

http://www.maacommunityrelations.com/content/anznoiseupdate/noisecomplaints.php